

"SMART is the right way to do something in the Lab as well."

Some tens of equipment are required in the lab for any kind of chemical or biological experiment.

A fact is that a scientist has to walk around in the lab periodically and monitor every equipment to watch if the experimental procedure is going well without any problem.

In spite of the limited manpower, time and space, scientists have a common mission to get the best result in their experiments, and it's not a simple issue to incorporate a certain innovative way to improve laboratory productivity.

Now, DAIHAN Scientific is going to take an initiative to change existing situation in the labs. So called, **Smart-Lab™ Equipment** is being introduced now here for the first time in the world, which will definitely **change the way to work in the labs.**

Wisd 2 Smart-Lab™ Equipments



"Remote Laboratory" - No limitation on Time and Place

• It's possible to monitor and control **Wisd**. Smart-Lab™ Equipments through App or Web at any time and anywhere you are.

"Intuitive Use" - Easiest way to monitor and control

- You would have Innovative User Experience on the full touch-screen LCD controller
- All the equipments in a lab, or, even in multiple labs, can be controlled at your fingertips using Smart phone
 or Laptop.

"Secure Laboratory" - Self-diagnostics & Real-time notification

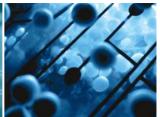
 Based on Self-Diagnostic System, any operational error of the equipment is noticed to the user and to the Service Center, automatically.



Maximum Convenience by Advanced Digital Technology

Smart-Lab™ Equipments





Like your Smart Phone in hand, and Smart TV at Home, Now, the Various Kinds of Equipment in Your Lab can be SMART!!

Make your Works and Laboratories SMART with DAIHAN Smart-Lab™ Equipments & WiRe™ App & Web Service.

DAIHAN Smart-Lab™ Equipments

The Smart-Lab™ System is an innovation of laboratory equipments.

DAIHAN Smart-Lab™ equipments include two types controller, 4-inch or 7-inch, full-touch screen controller, integrating the most extensively applied Android System and Internet Connectivity. At anytime, anywhere you are, and anyhow, you can check and control all the equipments in your lab using your smart phone, tablet on the web.

No Button. No Knob. Simply Touch!!

DAIHAN SMART line of Lab Equipments with

Full Touch Screen Controller and Internet Connectivity!!

>>> Features

- 4" or 7" Full Touch Screen TFT LCD
- · Ergonomic Design for Intuitive User Interface
- Program Control: Multiple Pattern with Multiple Segments
- Data Recording: On-Screen Temperature Chart
- USB storage for Recorded Data
- · Internet Connectivity with WiFi
- Remote Monitoring and Control by WiRe[™] Service
- · Storage Management function:

Record the location of samples in the chamber and find easily afterwards, on screen (for ULT Freezers)

Self-Diagnostic Function:

Automatic Check & Alarm for the Failures in Key Parts

 Real-time Notification of any Failure in the Equipment to the User(s), to the Service Man and to Supplier, through WiRe™ Service



DAIHAN Smart-Lab™ Controller

The DAIHAN Smart-Lab™ Controller is embedded in all of Wisd Smart-Lab™ equipments, which has a lot of useful functions like data recording, Storage managment, and self-diagnostic function and so on.

These functions are unique and innovative in the laboratory equipments. And the controller is connected with researcher's Smart phone, tablet or laptop computer through internet, by WiFi, so scientists are able to check all the equipments in the laboratory at any time, and at any place.



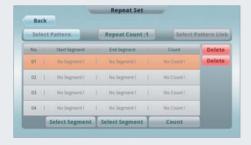
>> Ergonomic Screen Design

- 4" or 7" Full Touch Screen TFT LCD
- Intuitive User Interface
- No-extra Button, Knob or Switch
- All the main Functions and Parameters are displayed on the Main Screen.
- Simple Touch to set the Temperature, Time, and other parameters



>>> Automatic Data Recording

- High Resolution Graphic Display
- On-Screen Temperature Chart: Check the Temperature Record Graph on the Screen and could see the Details by Zoom-in & Zoom-out enabled at your finger tips.
- The Recorded Data could be transferred to PC by USB Memory.



>>> Program Control

- Variable Program Setting for Multiple Patterns with Multiple Segments
- Preview window offered to check simply the input patterns
- Very easy to input and edit patterns



>> Self Diagnostic Function

- Automatic Check & Alarm for the Failures in Key Parts of the equipment
- Real-time Notification of any Failure in the Equipment to the User(s), to the Service Man and to Supplier, through WiRe™ Service.
- Implemented by LIN and empowered by WiRe[™] Service



>> Internet Connectivity with WiFi

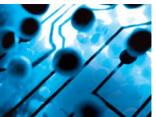
- Remote Control is available for all the Equipments in the laboratory using Smart Phone, tablet or on the Web.
- Available WiRe[™] App & Web Service



Maximum Convenience by Advanced Digital Technology

Smart-Lab™ Equipments





WiRe[™] App & Web Service



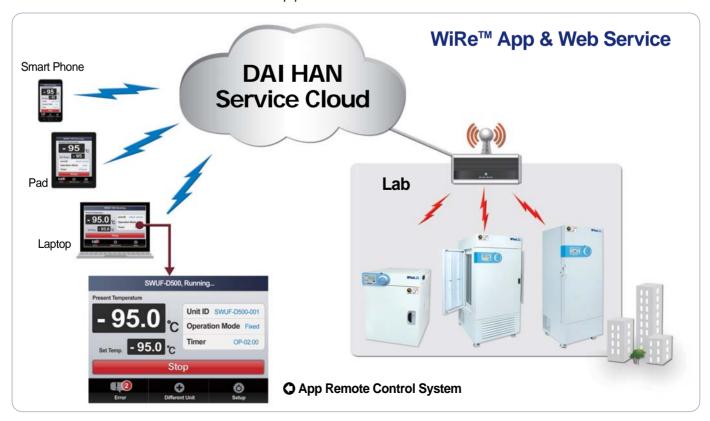
WiRe[™] App & Web service enables gathering, analyzing, and sharing of experimental data, and direct control of the unit is possible as well, anywhere and at any time.

When a defect of the unit occurs, it is processed by self-diagnostic system automatically. If you want to get safe and reliable data comfortably, it's a Smart choice to be Supported by WiRe $^{\text{TM}}$ service.

At anytime, Anywhere you are, and Anyhow, you can check and Control All the Equipment in your Lab **Using Your Smart Phone or on the Web.**

>>> Features

- Developed by Advanced Web Technology
- Support all different kinds of Web browser based on HTML Standards
- Available in all the PCs, Laptops and MACs
- Offering Android App and Apple iOS App
- · Almost same UI as the Touch Screen Controller on the Equipment is available



>> WiRe™ Remote Control System

- Anytime, anywhere you are, and anyhow, you can check and control the Freezer in your Lab using your smart phone or web.
- It is possible to monitor and control the Smart-Lab™ equipment through all smart phone, tablet and web without restraint of time and place.



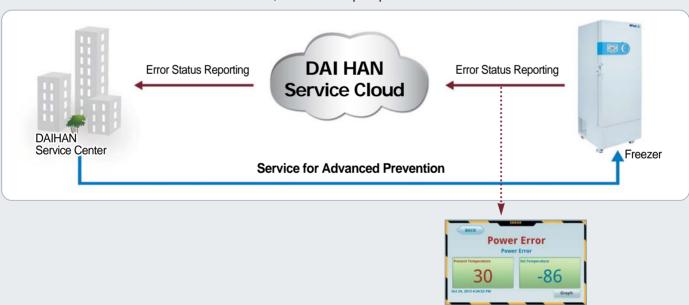
>>> Device Settings and User Registration

- · A single unit can be remote controlled by multiple users
- · A single user can remote control multiple units in the Lab
- Smart-Lab™ equipments offer registration of multiple users with simple account information



>> Self Diagnostic Function

The Self-Diagnosis System senses a certain defect within the unit, and reports it to the service center through the servers operated by DAIHAN. The Service Center verifies the defects of the unit received, and could offer prompt service.



>>> Smart-Lab™ Equipment lines

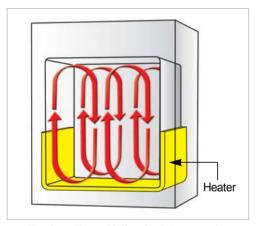
| Display | Error | Status | Re | port | ting |
|---------|-------|--------|----|------|------|
|---------|-------|--------|----|------|------|

| ThermoStable™SIG- / SIF-Series of General Purpose Incubators | P.112~113, 116~117 |
|--|----------------------|
| ThermoStable™SIR-Series of Low Temperature Incubators | P.126~127 |
| ThermoStable™SON-/SOF-Series of General Purpose Ovens | P.148~149, 152~153 |
| ThermoStable™SOV-Series of Vacuum Ovens······ | P.160 |
| ThermoStable™GC-Series of Growth Chambers | ··· P.48~49, 130~131 |
| SimpleFreez™& DuoFreez™-Series of Ultra Low Temperature Freezers | P.166~181 |
| SMART Refrigerated Bath Circulators | Coming soon |
| SMART Shaking Incubators | Coming soon |
| SMART Temp. & Humidity Chambers | ····· Coming soon |
| SMART Cold Lab Chambers | Coming soon |

DAIHAN ThermoStable™ SIG SMART Incubators, Gravity Convection-type, 32-/50-/105-/155 Lit. NEW with Smart-Lab™ Controller, 4″ Full Touch Screen, Fuzzy-PID Control, up to 70°C, ±0.2°C, with Certi. & Traceability



SMART Incubator, Forced Convection-type "ThermoStable SIG-105"



The Best Temp, Uniformity & Accuracy by High Performance Heating Mechanism



Display of Smart-Lab™ Controller

 See page 6 ~ 11 for the Feature of Smart-Lab™ System

- with Certificate & Traceability: Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- Optimized Air Circulation by Natural Flow preventing Cross **Contamination of Samples**
- Smart-Lab[™] Controller
- UL / CUL Certified
- CE Certified
- GD(Good Design)-mark
- PL(Product Liability) Insurance
- * Various Application: Microorganism Culture, Animal & Plant Cell Culture, Constant Temp.,
- * The Best Temp. Uniformity & Accuracy by High Performance Heating Mechanism: 3-Side Heating
- * Optimized Air Circulation by Natural Flow preventing Cross Contamination of Samples
- * Ergonomic Design 4" Full Touch Screen TFT LCD(Smart-Lab™Controller)
- * WiRe™App & Web Service.
- * Automatic Data Recording
- * Self-Diagnostic Function
- * 2ea of Teflon-coated steel Wire Shelves Included
- * Variable Program Setting for Multiple Patterns with Multiple Segments
- * The Recorded Data could be transferred to PC by USB memory
- * Controller SW can be upgraded through USB port.
- * Internet Connectivity with WiFi
- * Compact New Body Design
- * RS232C Interface for Monitoring and Controlling with PC
- * Ambient to 70°C of Temp. Range, Fluctuation of ±0.2°C at 37°C, ±0.3°C at 50°C
- * Corrosion Resistant 304 Stainless steel Chamber
- * Over Temperature & Over Current Protection, Sensor Error Detection

Specification

| Models | | ThermoStable SIG-32 | ThermoStable | ThermoStable | ThermoStable | | |
|--|--------------------|---|--|---------------|--------------------|--|--|
| | | | SIG-50 | SIG-105 | SIG-155 | | |
| Capacity | Capacity | | 50 Lit. | 105 Lit. | 155 Lit. | | |
| Dimension | Interior (mm) | 312×290×360 | 370×350×420 | 485×410×535 | 550×475×600 | | |
| $(\mathbf{w} \times \mathbf{d} \times \mathbf{h})$ | Exterior (mm) | 458×477×624 | 518×537×701 | 635×595×841 | 700×660×906 | | |
| Heater Power | | 150W | 200W | 300W | 400W | | |
| | Range | Ambient Temperature +5 ℃ to 70 ℃ | | | | | |
| Temp. | Fluctuation | \pm 0.2 $^{\circ}$ at 37 $^{\circ}$, \pm 0.3 $^{\circ}$ at 50 $^{\circ}$ | | | | | |
| · op. | Variation | \pm 0.6 $^{\circ}$ at 37 $^{\circ}$, \pm 1.0 $^{\circ}$ at 50 $^{\circ}$ | | | | | |
| | Sensor | PT 100 | | | | | |
| Control Resolut | Control Resolution | | ±0.1℃ | | | | |
| Heat-up Time | | | 25 min. to 37 $^{\circ}\!$ | , | 30 min. to 37 °C , | | |
| Tieat-up Time | | 40 min. to 50 ℃ | | | 40 min. to 50 ℃ | | |
| Recovery Time | | | to 37 °C | | in. to 37 ℃ | | |
| (Door open 30s | ec) | 12 min. | to 50 ℃ | | to 50 ℃ | | |
| Controller | | Smart-Lab™ Controller | | | | | |
| RS232 Port | | Available to connect with PC | | | | | |
| Display | | 4" Full Touch Screen TFT LCD | | | | | |
| Timer | | 99hr 59 min (delay/continuous function) | | | | | |
| | Internal | Stainless steel (#304) | | | | | |
| Material | External | Powder Coated steel | | | | | |
| Inner Door | | Inner Tempered Glass Door | | | | | |
| Shelves | | 2ea of Teflon-coated steel Wire Shelves included, Load per Shelf : 16 kg | | | | | |
| Ventilation | | 1ea of Ventilation hole with Stainless steel Cap, Hole Diameter 40mm | | | | | |
| Circulation | | Gravity Convection Type | | | | | |
| Safety device | | Over Temp. and Over Current Protector, Sensor Error Detector | | | | | |
| Others | | UL/CUL Certified, CE Certified, GD-mark | | | | | |
| | | Storage Function (Temp. and Time) | | | | | |
| | | Alarm (Error Status and Timer-end) | | | | | |
| Net Weight (kg) | | 32 | 40 | 59 | 71 | | |
| Packing Size (w×d×h) (mm) | | 568×592×698 | 628×652×775 | 731×710×1,018 | 796×775×1,083 | | |
| Shipping Weight (kg) | | 39 | 53 | 67 | 78 | | |
| Power Consumption | | 159 W | 169.9 W | 292.9 W | 420.5 W | | |
| Energy Consumption, at 37°C | | 34 Wh | 41 Wh | 63 Wh | 99 Wh | | |
| , at 50°C | | 81 Wh | 103 Wh | 152 Wh | 212 Wh | | |
| Power Supply | | 1Phase 120V, 60Hz or 230V, 50/60Hz | | | | | |

^{*} Other Specifications are available upon Customer's Request.

<Continued on next page>

Description

Continued from... DAIHAN ThermoStable™ SIG SMART Incubators, Gravity Convection-type>

Ordering Information

| DH.SWIG03032 DH.SWIG03050 DH.SWIG03105 | Incubator, Gravity, 230V, 32 Lit., "ThermoStable SIG-32", 50 Lit., "ThermoStable SIG-50", 105 Lit., "ThermoStable SIG-105" |
|--|--|
| DH.SWIG03155 DH.SWIG04032 | , 155 Lit., "ThermoStable SIG-155" Incubator, Gravity, 120V, 32 Lit., "ThermoStable SIG-32" |
| DH.SWIG04050 | , 50 Lit., "ThermoStable SIG-50" |
| DH.SWIG04105 | , 105 Lit., "ThermoStable SIG-105" |
| DH.SWIG04155 | , 155 Lit., "ThermoStable SIG-155" |

Spare Wire Shelves, Teflon Coated steel

DH.WIG11032 Wire Shelf, Teflon Coated steel, with 2 Brackets, for 32 Lit.,

"IGS032", w280×d260mm

DH.WIG11050 Wire Shelf, Teflon Coated steel, with 2 Brackets, for 50 Lit.,

"IGS050", w340×d310mm

DH.WIG11105 Wire Shelf, Teflon Coated steel, with 2 Brackets, for 105 Lit.,

"**IGS105**", w455×d375mm

DH.WIG11105 Wire Shelf, Teflon Coated steel, with 2 Brackets, for 155 Lit.,

"**IGS155**", w520×d440mm

Optional Wire Shelves, Stainless steel

DH.WIG12032 Wire Shelf, Stainless steel, with 2 Brackets, for 32 Lit.,

"IGSN032", w280×d260mm

DH.WON11050 Wire Shelf, Stainless steel, with 2 Brackets, for 50 Lit.,

"ONS050", w340×d310mm

DH.WON11105 Wire Shelf, Stainless steel, with 2 Brackets, for 105 Lit.,

"ONS105", w455×d375mm

DH.WON11155 Wire Shelf, Stainless steel, with 2 Brackets, for 155 Lit./305Lit.,

"ONS155", w520 \times d440mm

Validation (IQ, OQ) Service

 DH.SWIG31032
 Validation Service(IQ, OQ), "SIGV032", for "SIG-32"

 DH.SWIG31050
 , "SIGV050", for "SIG-50"

 DH.SWIG31105
 , "SIGV105", for "SIG-105"

 DH.SWIG31155
 , "SIGV155", for "SIG-155"

>>> DAIHAN WiRe™ App & Web Service



4" Full Touch Screen TFT LCD (Smart-Lab™ Controller)

See page 6 ~ 11 for the Feature of Smart-Lab™ System

It is possible to monitor and control the Smart-Lab $^{\mathbb{M}}$ equipment through all smart phone, tablet and web without restraint of time and place.



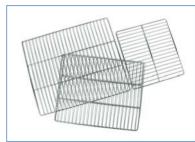
WiRe[™] App & Web Service



SMART Incubator, Forced Convection-type "ThermoStable SIG-105"



Wire Shelves, Teflon Coated steel (Included)



Wire Shelves, Stainless steel (Optional)